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RCE and Amendment Dated June 24, 2005
Reply to Office Action of March 28, 2005

IN THE CLAIMS

1. (Currently amended) An afterburner for an internal combustion engine of a motor vehicle, the afterburner comprising:

a screen without a catalyst affixed to an intake pipe located upstream of an exhaust gas recirculation valve, wherein the screen captures and burns particles contained in an exhaust gas stream which are a size large enough to obstruct the exhaust gas recirculation valve;

wherein the exhaust gas stream heats the screen to a temperature sufficient to burn the particles.

2. (Original) An afterburner as in claim 1, wherein the screen is thimble-shaped.

3. (Original) An afterburner as in claim 1, wherein the screen has a mesh size of about 12 to 20.

4. (Original) An afterburner as in claim 1, wherein the screen has a minimum size of 5 mesh.

5. (Original) An afterburner as in claim 1, wherein the screen has a maximum size of 40 mesh.

6. (Original) An afterburner as in claim 1, wherein the screen is affixed to an intake pipe by interference fit.

7. (Original) An afterburner as in claim 1, wherein the screen is affixed to an intake pipe by welding.

8. (Original) An afterburner as in claim 1, wherein the screen is affixed to an intake pipe by mechanical means.

9. (Original) An afterburner as in claim 1, wherein the screen is made from a material with a high thermal conductivity.

10. (Original) An afterburner as in claim 9, wherein the screen is made from stainless steel.

11. (Currently amended) An exhaust gas recirculation valve system for a motor vehicle comprising:

an exhaust gas recirculation valve;

an intake pipe coupled to an intake orifice of the exhaust gas recirculation valve;

a screen affixed to the intake pipe and positioned adjacent to an exhaust gas manifold, so that the screen captures and burns particles contained in an exhaust gas which are a size large enough to obstruct the exhaust gas recirculation valve;

wherein the exhaust gas stream heats the screen to a temperature sufficient to burn the particles.

12. (Previously presented) An exhaust gas recirculation valve system for a motor vehicle as in claim 11, wherein the exhaust gas recirculation valve is an integral backpressure type valve.

13. (Previously presented) An exhaust gas recirculation valve system for a motor vehicle as in claim 11, wherein the exhaust gas recirculation valve is a ported type valve.

14. (Previously presented) An exhaust gas recirculation valve system for a motor vehicle as in claim 11, wherein the exhaust gas recirculation valve is an electronic type valve.

15. (Previously presented) An exhaust gas recirculation valve system for a motor vehicle as in claim 11, wherein the exhaust gas recirculation valve is a valve and transducer type valve.

16. (Previously presented) An exhaust gas recirculation valve system as in claim 11, wherein the screen is thimble-shaped.

17. (Previously presented) An exhaust gas recirculation valve system as in claim 11, wherein the screen is affixed to an intake pipe by interference fit.

18. (Previously presented) An exhaust gas recirculation valve system as in claim 11, wherein the screen is affixed to an intake pipe by mechanical means.

19. (Previously presented) An exhaust gas recirculation valve system as in claim 11, wherein the screen is made from a material with a high thermal conductivity.

20. (Previously presented) An exhaust gas recirculation valve system as in claim 19, wherein the screen is made from stainless steel.

21. (Currently amended) A method of afterburning large particles in an exhaust gas stream of an internal combustion engine, the exhaust stream comprising at least one molar percent oxygen, the method comprising the steps of:

heating a perforate afterburner without a catalyst with an exhaust gas stream to a temperature high enough to burn large particles, the afterburner being located within the exhaust gas stream;

capturing large particles contained in the exhaust gas stream with the afterburner;

holding the captured particles with the afterburner for a sufficient time to burn the large particles to a size they can pass through the afterburner.

22. (Original) A method of afterburning large particles in exhaust gas stream as in claim 21, wherein the afterburner is heated to a temperature of at least 900°F.

23. (Currently amended) An afterburner for an internal combustion engine of a motor vehicle, the afterburner comprising:

a screen without a catalyst affixed to an intake pipe located upstream of an exhaust gas recirculation valve, wherein the screen captures and burns particles contained in an exhaust gas stream which are a size large enough to obstruct the exhaust gas recirculation valve;

wherein the exhaust gas stream continuously heats the screen to a temperature sufficient to burn the particles while the exhaust gas stream is at least 900°F.

24. (Previously presented) An afterburner as in claim 23, wherein the screen is thimble-shaped.

25. (Previously presented) An afterburner as in claim 23, wherein the screen has a mesh size of about 12 to 20.

26. (Previously presented) An afterburner as in claim 23, wherein the screen has a minimum size of 5 mesh.

27. (Previously presented) An afterburner as in claim 23, wherein the screen has a maximum size of 40 mesh.

28. (Previously presented) An afterburner as in claim 23, wherein the screen is affixed to an intake pipe by interference fit.

29. (Previously presented) An afterburner as in claim 23, wherein the screen is affixed to an intake pipe by mechanical means.

30. (Previously presented) An afterburner as in claim 23, wherein the screen is made from a material with a high thermal conductivity.

31. (Previously presented) An afterburner as in claim 23, wherein the screen is made from stainless steel.

32. (Previously presented) An exhaust gas recirculation valve system for a motor vehicle comprising:

an exhaust gas recirculation valve;

an intake pipe coupled to an intake orifice of the exhaust gas recirculation valve; and

a screen located upstream of the exhaust gas recirculation valve, the screen being affixed to the intake pipe solely with an interference fit.

33. (Previously presented) The exhaust gas recirculation valve system of claim 32 wherein the screen has an outwardly flared open end which, when the screen is pushed down into an open end of the intake pipe, engages the interior of the pipe and prevents the screen from moving in the pipe during normal operation of the system.

34. (Currently amended) A method of afterburning large particles in an exhaust gas stream of an internal combustion engine, the exhaust stream comprising at

least one molar percent oxygen, the method comprising pushing a screen into a pipe of an exhaust system of the engine next to an exhaust manifold, ~~in a part of the exhaust system~~ which is heated by the exhaust gas stream to a temperature of at least 900°F, and holding the screen in position by friction.

35. (Previously presented) The method of claim 34 wherein the screen has an outwardly flared open end which, when the screen is pushed down into an open end of the pipe, engages the interior of the pipe and prevents the screen from moving in the pipe during normal operation of the system.

36. (New) An afterburner as in claim 1, wherein the screen is affixed to an intake pipe and positioned adjacent to an exhaust manifold.

37. (New) An afterburner as in claim 23, wherein the screen is affixed to an intake pipe and positioned adjacent to an exhaust manifold.